

Welcome to  
Orientation  
Packaging and Systems Facility(PASF)

TF32- Third Floor Room#32

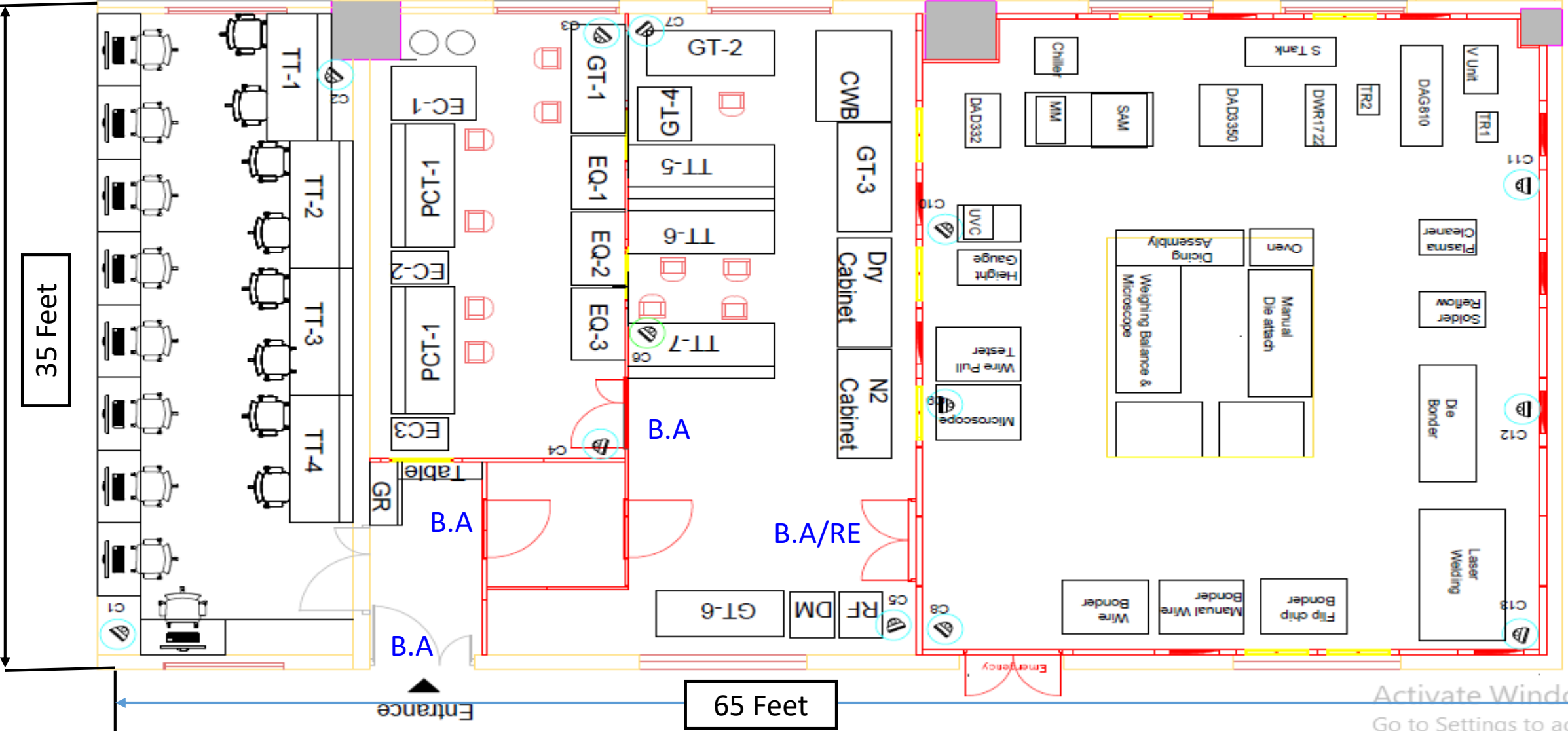
CeNSE-IISc

# Agenda

1. PASF- TF 32 Layout
2. Team Structure of PASF
3. Why & What is PASF
4. Design Services
5. Equipments and Tools
6. Procedure for Access to PASF-TF32
7. Contact Details

# 1.0 Current Layout of PASF-TF32

Seating-Design Area    Semiclean Room    Testing Area    Clean Room Class10K –Restricted Entry

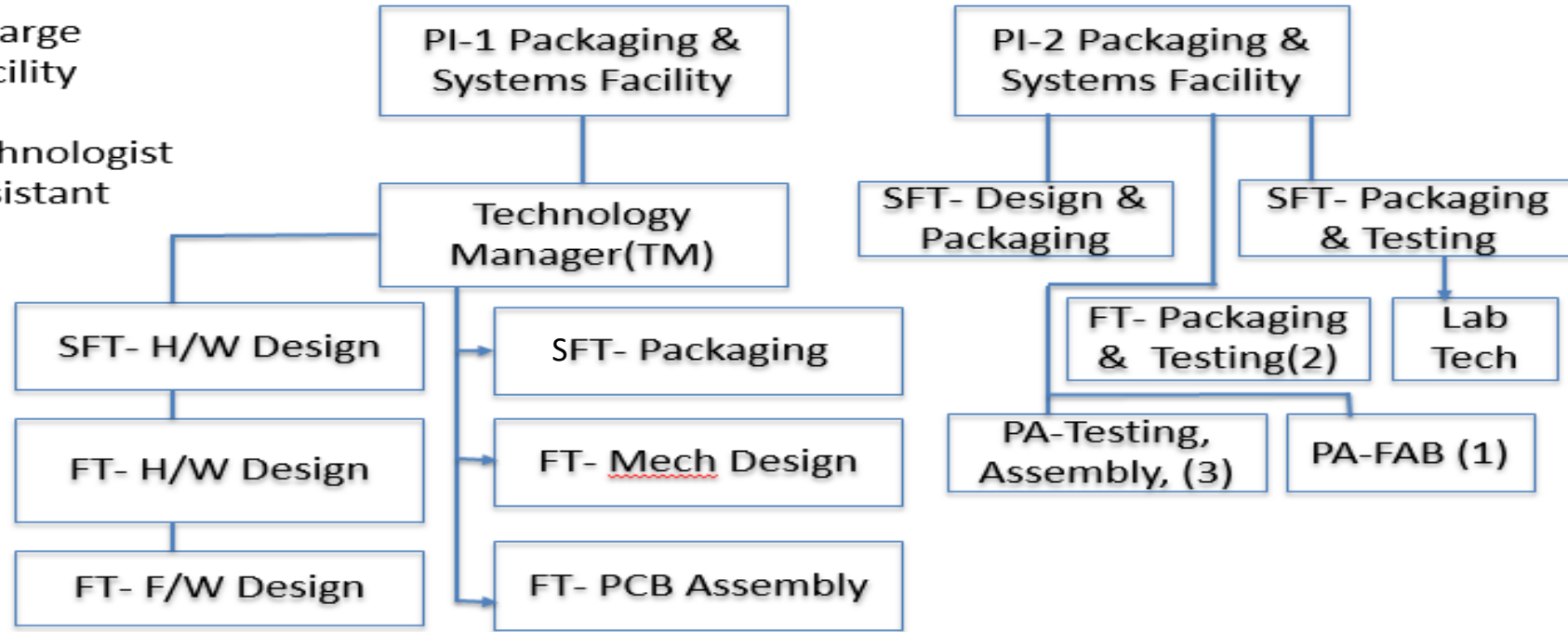


# 2.0 Current Team of PASF-TF32

## Organisation Chart–Packaging and Systems Facility PASF



PI-Project Incharge  
SFT- Senior Facility Technologist.  
FT- Facility Technologist  
PA- Project Assistant



Note:- The Team Structure changes YOY depending on Projects/Work Load

# 3.0 Why & What is PASF



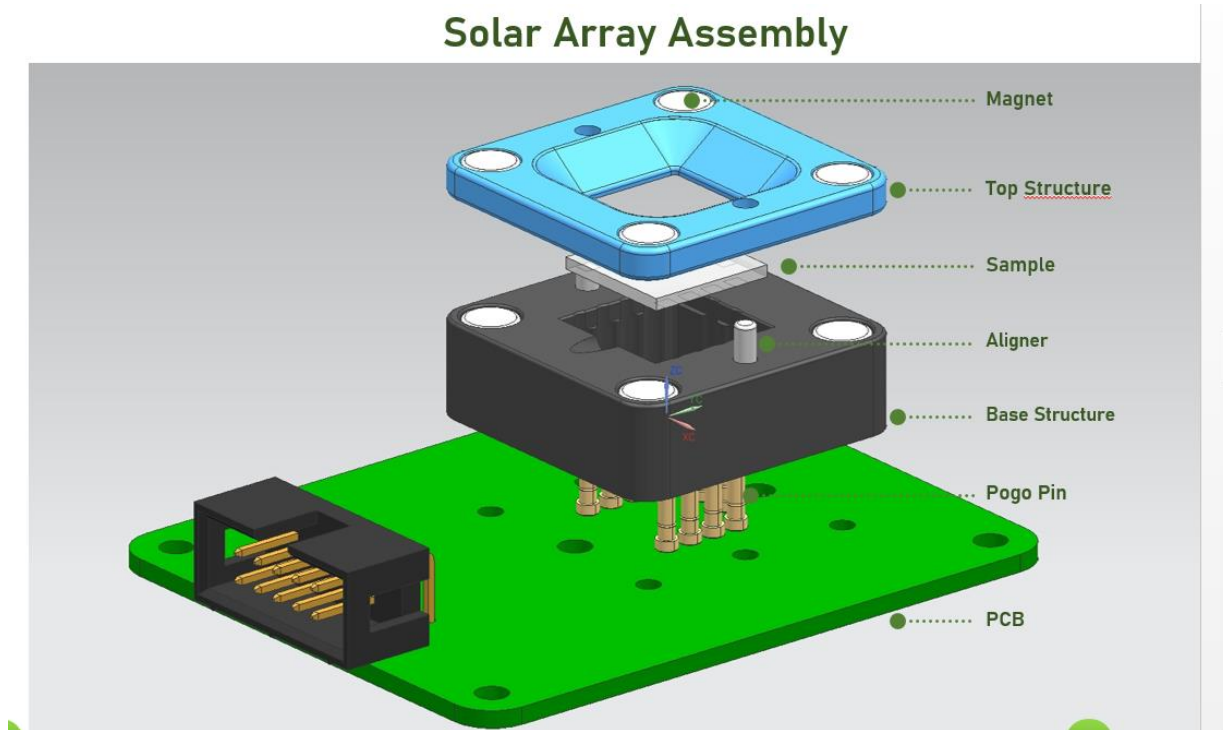
- ❖ NNFC –CeNSE IISc has MEMS or Nano Fabrication Facility
- ❖ Once Wafer is Fabricated, Characterised.... Need to be Packaged
- ❖ Packaging involves Wafer Dicing, Die Packaging, Substrate Design
- ❖ Only a Die Designed and Fabricated means ????
- ❖ Need interface Electronics to interpret what a Die does
- ❖ System Design- Simple to complex Electronics, Mech Housing Design and Prototype Development and Testing
- ❖ TOT- For Mass Production after User/Customer Acceptance

The Vision and Charter of PASF is to bring NanoTechnology to Life by offering Products , Solutions & Services from the Research Efforts at Centre for Nanosciences and Engineering –CeNSE IISc

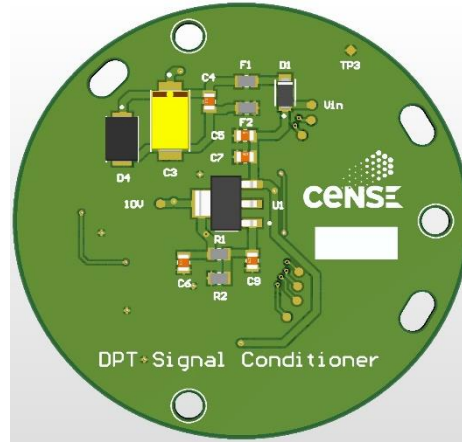
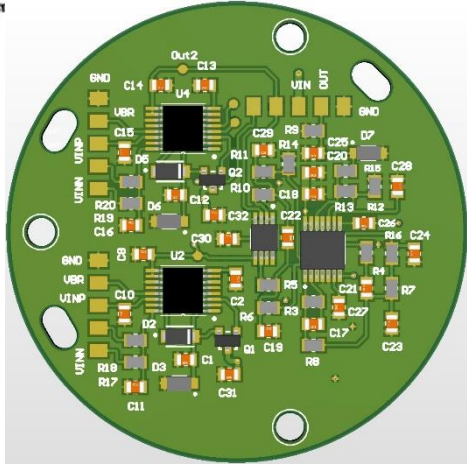
## Solutions and Services Offered

- I. Analog and Digital Board Design- [Altium](#).
- II. Firmware Development. –[STM32/Arduino/Others](#)
- III. Mechanical Housing Design and Modelling- [Solid Works](#)
- IV. 3D Printing –[Bambu Carbon Fibre Printer](#).
- V. Prototype Development and Transfer to Mass Production
- VI. Support TBI (Technology Business Incubation) & Startup's
- VII. Packaging of Microelectronics such as Wirebonding, Wafer Dicing, Laser Welding, Flip Chip Bonding.
- VIII. Design and Development of New Products based on Nanotechnology Research at CeNSE- IISc such as Gas Sensors, Pressure Sensors etc..
- IX. [Provide Advanced Packaging Solutions with Focus on Research and Development- New \(Ansys- SW\)](#)

## Product Photos- Solar Array Silicon Assembly

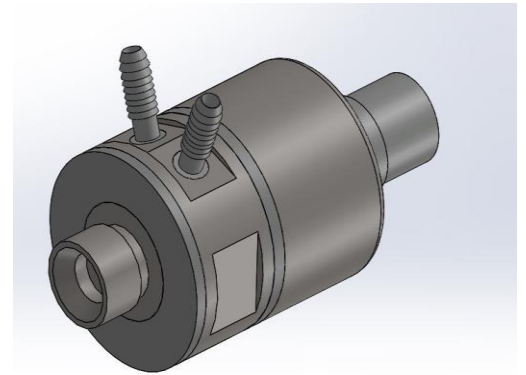
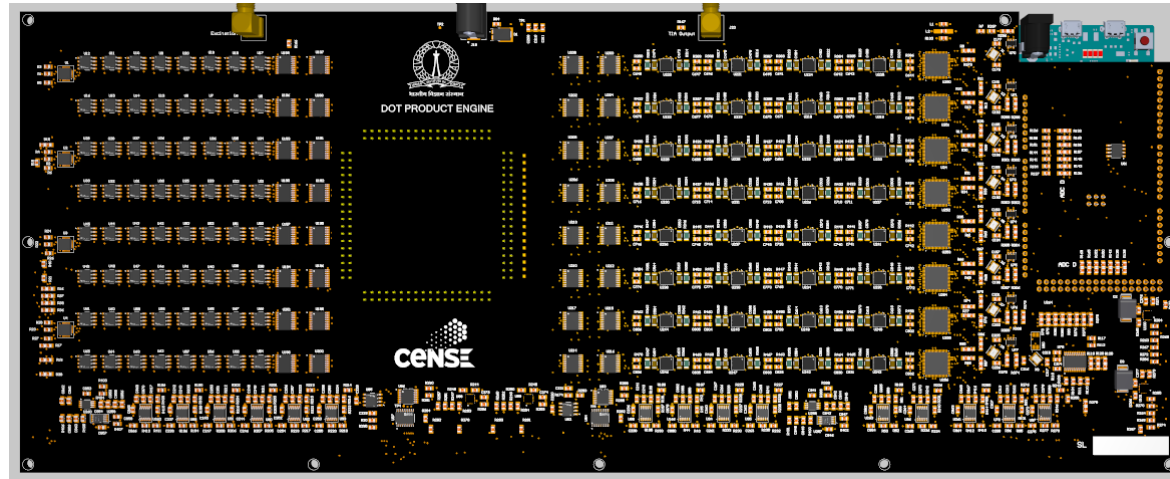
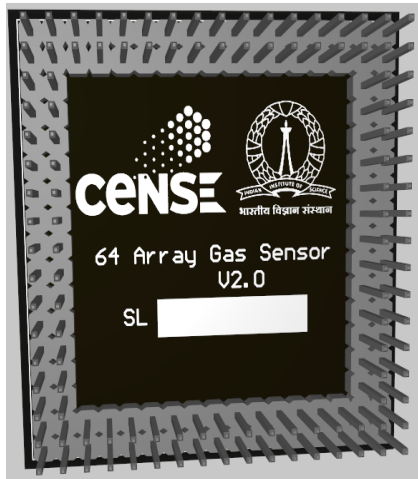


# Design Services – Few Snap Shots



Sensor Signal Conditioner PCB

AQM Unit



64 Array Gas Sensor Package

6 Layer Sensor Interface Board with 3900 Components – Design and PCB Assembly

3 in 1 Sensor Package- Modelled and 3d Printed

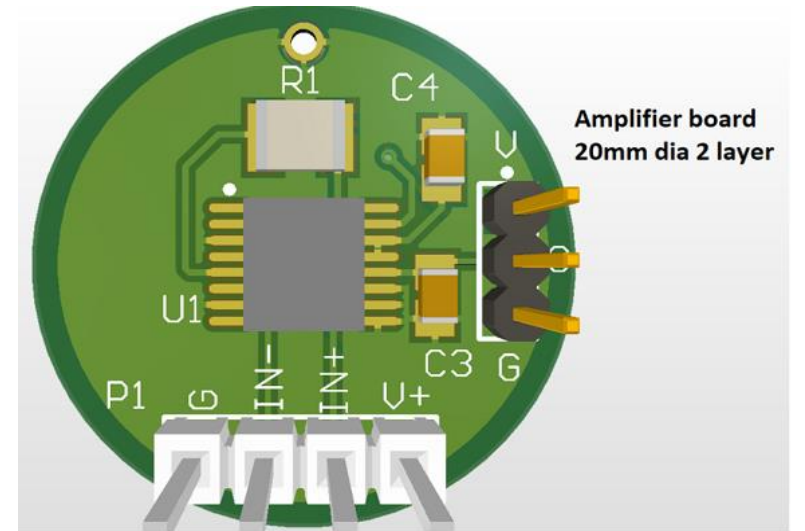
# PASF- SOME PRODUCT PHOTOS DEVELOPED AT CENSE-IISC



H2S Malodour Unit



AQM Unit



Pressure Sensor  
Amplifier Board

Confidential Not to be  
disclosed without Approval



# PASF- Products Developed

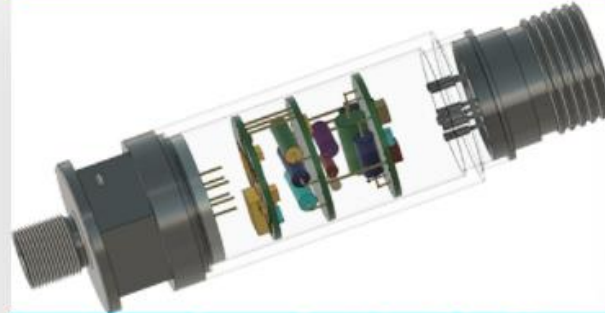
## MEMS PRESSURE TRANSDUCER

### ABSOLUTE PRESSURE TRANSDUCER



1. Absolute Pressure Transducer (1.2 bar A)
2. Absolute Pressure Transducer (Altitude Sensor)

### GAUGE PRESSURE TRANSDUCER



1. Gauge Pressure Transducer (10 bar G)
2. Gauge Pressure Transducer (600 mbar G)
3. 0-200bar Pressure Transducer (Gauge)
4. 0-400Bar MEMS Pressure Transducer (Gauge)

### DIFFERENTIAL PRESSURE TRANSDUCER

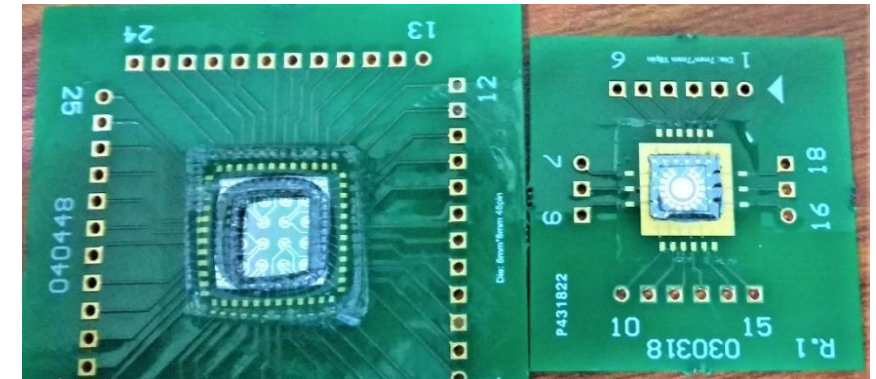
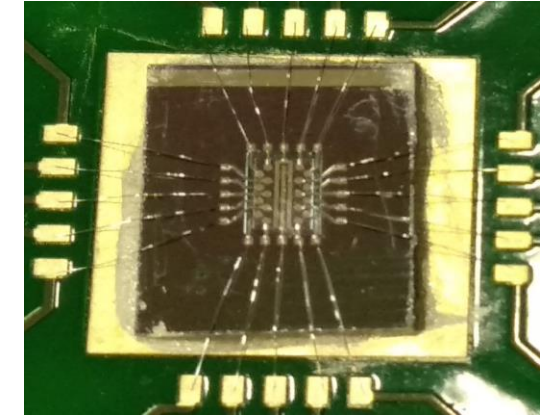
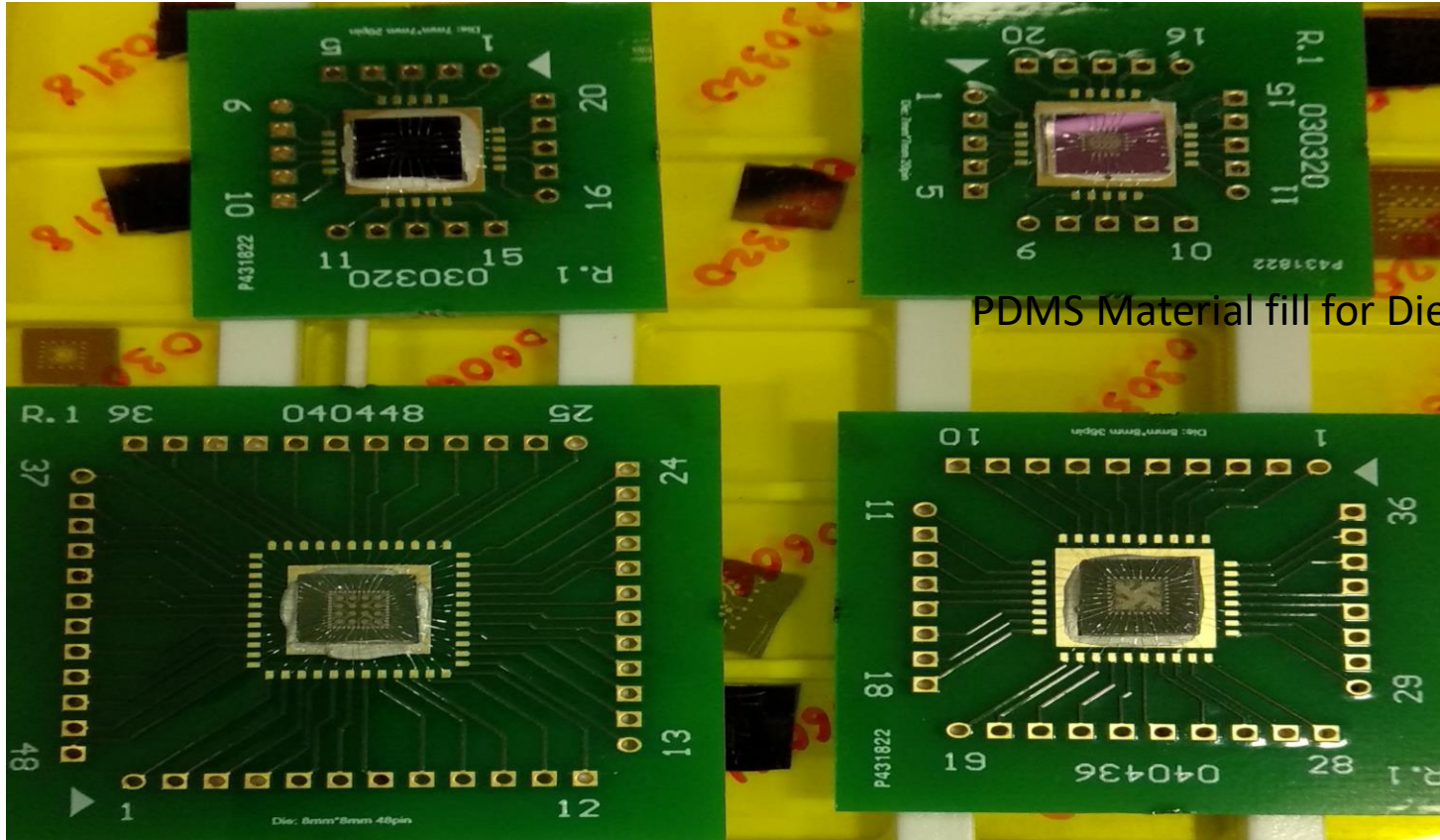


1. Differential Pressure Transducer (600 mbar D)
2. Differential Pressure Transducer (150 mbar D)
3. Differential Pressure Transducer (Air Speed Pressure sensor)

- Pressure Transducers of Various Types and Ranges

# Packaging- Biosensors PCB Design and Wirebonding

- 4 Types of 2 Layer PCB Design and Procurement
- Sensor packaging 20 pin (2#) , 36 & 48 Pin(1#) each



PDMS Material fill for Die



# PASF- TF 32 KEY EQUIPMENT LIST



May 2-2024

## PASF-TF32 CeNSE-IISc Equipment List

PASF-TF32 CeNSE-IISc Equipment List					
Major Tools and Equipments					Staff Responsible
SL:NO:	Tool no/SAP ID.	Tool Name	Model	Make	
1	PASF001	MTI Precision CNC Dicing Machine	5410	MTI Corp	Pavithra B
2	PASF002	Climatic chamber-Votsch - 1	VCL 7003	Votsch	Mehboob J
3	PASF003	Climatic chamber-Votsch - 2	VCL 7003	Votsch	Veera Pandi
4	PASF004	SCS Parylene Deposition system	PS2010	Speciality Coating Systems	Pavithra B
5	PASF005	Semi Automatic Wire bonder	HB16	TPT	Sumanth RV
6	PASF006	Laser Welding Machine	LW70AE	Miyatek	Sumanth RV
7	PASF007	Manual DC Probe Station	C Series	Everbeing	Manu Pai
8	PASF008	Helium Leak Detector	L300TL7	Leybold	Sumanth RV
9	PASF009	Fibre Laser Marking Tool	LM-BT20W	Light Mechanics	Manu Pai
10	PASF010	Automatic Dicing Saw	DAD3121	Disco	Mehboob J
11	PASF011	Pneumatic Pressure calibrator 20bar	7250	Fluke	Veera Pandi
12	PASF012	Hydraulic Pressure calibrator	P3125	Fluke	Pavithra B
13	PASF013	Hot Air Oven	DP-18702	Delta Power Controls	Sumanth RV
14	PASF014	Sand blasting Tool	922	Sirio	Pavithra B
15	PASF015	High Power Plasma Cleaner	PDC002	Harrick Plasma	Manu Pai
16	PASF016	Centrifuge	PR24	Remi	Manu Pai
17	PASF017	Pneumatic Pressure calibrator 200bar	6275i	Fluke	Veera Pandi
18	PASF018	Climate & Humidity test Chamber	DY110C	ACS	Veera Pandi
19	PASF019	Chemical wet Bench	Local Designed and Procured	-----	Pavithra B
20	PASF020	Soldering & Desoldering Station	S RX802 AS1845CR	Goot	Raju T
21	PASF024	Flip Chip Bonder	Sigma Fine Placer	Fine Tech	Sumanth RV
22	PASF025	Wire Bonder	HB10	TPT	Mehboob J
23	PASF021-TS20	Hydraulic Dead Weight Tester	P3215	Fluke	Pavithra B



# PASF- TF 32 DESIGN SERVICES AND TESTING TOOLS



Design and Testing Services					
SL:NO:	Tool no/SAP ID.	Tool Name	Model	Make	
24	PASF021-TS01	Insulation Tester	GPT9804	GW Instek	Pavithra B
25	PASF021-TS02	Milliohm meter	GOM802	GW Instek	Pavithra B
26	PASF021-TS03	Function Generator	AFG3081	GW Instek	Pavithra B
27	PASF021-TS04	Digital Storage oscilloscope 100MHZ	GDS2102	Instek	Pavithra B
28	PASF021-TS05	DC power Supply 12V30A	SPS123D	GW Instek	Pavithra B
29	PASF021-TS06	LCR meter	LCR819	GW Instek	Pavithra B
30	PASF021-TS07	DC power Supply 30V,3A	SPS606	GW Instek	Pavithra B
31	PASF021-TS08	Digital Multimeter	GDM8261A	GW Instek	Pavithra B
32	PASF021-TS09	Vacuum Calibrator	D35614	Pfeiffer	Veera Pandi
33	PASF021-TS10	Differential Calibrator	249T	Buden Berg	Veera Pandi
34	PASF021-TS11	Barometric Calibrator	BC-8	Ultrahighvac	Veera Pandi
35	PASF021-TS12	Oil Filling System	UHVOFS01	Ultrahighvac	Veera Pandi
36	PASF021-TS13	Ultra Probe Sonicator	Lab500	Next Gen Lab	Veera Pandi
37	PASF021-TS14	Shock tube 1	Local Designed and Procured	-----	Pavithra B
38	PASF021-TS15	Shock tube 2	Local Designed and Procured	-----	Pavithra B
39	PASF021-TS16	CNC PCB Routing	CM-PCB3020	ETS	Mehboob
40	PASF021-TS17	Profile Projector	VL360	Opticom	Veera Pandi
41	PASF021-TS18	Hot plate	MC02	Tarson	Raju T
42	PASF022-DS-01	Design Services1- PCB Design and Development	Altium 18.0	Altium	Jitthu/Netra/Pooja B
43	PASF022-DS-02	Design Service2 -Embedded Firmware	Emulators/ Programmers	STM/Keil/Arduino	Jitthu/Lohit
44	PASF022-DS-03	Design Services 2- PCB Design and Development	Altium 18.0	Altium	Jitthu/Netra/Pooja B
45	PASF022-DS-04	Design Services4- Embedded Software	MSVC/VB/Python	Microsoft/Open Source	Jitthu/Lohit
46	PASF022-DS-05	Design Services 3- PCB Design and Development	Altium 18.0	Altium	Jitthu/Netra/Pooja B
47	PASF022-DS-06	Design Services6-Mech Design & Development	CAD/CAM/CAE	Solid Works	Sumanth RV
48	PASF022-DS-07	DC power supply-1 GPS2303	GPS-2303	GW Instek	Jitthu/Lohit
49	PASF022-DS-08	Digital multimeter-1 GDM 8261A	GDM8261A	GW Instek	Jitthu/Lohit
50	PASF022-DS-09	Signal Generator	AM300	Rohde & Schwarz	Jitthu/Lohit
51	PASF022-DS-10	Function Generator1 HP33120A	HP33120A	HP	Jitthu/Lohit
52	PASF022-DS-11	DC power supply-2 GPS2303	GPS-2303	GW Instek	Jitthu/Lohit
53	PASF022-DS-12	Digital multimeter-2 GDM 8261A	GDM8261A	GW Instek	Jitthu/Lohit
54	PASF022-DS-13	Digital Storage Oscilloscope GW Instek	GDS-1102A-U	GW Instek	Jitthu/Lohit
55	PASF022-DS-14	Source Monitor	SMU 2450	Keithley	Jitthu/Lohit
56	PASF022-DS-15	Function Generator2 HP33120A	HP33120A	HP	Jitthu/Lohit
57	PASF022-DS-16	LCR METER	TH2817B	Tonghui	Jitthu/Lohit
58	PASF022-DS-06	3D Printer	X1-Carbon	Bambu Labs	Sumanth RV



# PASF- TF 32 PROCEDURE TO ACCESS

## Simple Steps

1. Check with your Prof what Equipment/Tools/Design Services u need
2. Request a mail for User Agreement from PASF Website
3. Procedure for Biometric Access, Facility online Manager (FOM) will be provided after signed User Agreement is given to PASF TM.
4. Login to FOM and enter all details.
5. Check the Equipment List in FOM and discuss with FT/SFT before booking slots.
6. Links are below

<http://www.bio.cense.iisc.ac.in>

<http://facilitybooking.cense.iisc.ac.in/fom/>



# Generic Rules for PASF Useage

- Booking of All Equipments/ Facilities Under FOM is compulsory
- Safety Rules to be Followed
- FT/SFT to be contacted for all Services Like Design, Development, Facility or Equipment Usage
- Compulsory to use Shoe Cover/ Gown if it is Clean Room or Semi Clean Room Area
- Procedures like Operating Manual and FT/SFT Instructions for Services Usage



# PASF CONTACT, FEEDBACK & QUERIES??



For More Details Please visit the Systems and Packaging Website

<http://www.sysefandpackagingfacility.cense.iisc.ac.in//>

pasf.cense@iisc.ac.in

Contact IISc Extension 433 @ TF33-CeNSE- IISc

